IN THE UNITED STATES DISTRICT COURT FOR THE SOUTHERN DISTRICT OF TEXAS BROWNSVILLE DIVISION

SAVE RGV,

Plaintiff,

Civil Action No.1:24-cv-00148

v.

SPACE EXPLORATION TECHNOLOGIES CORP.,
Defendant.

DECLARATION OF KATY GROOM

- I, Katy Groom, declare as follows:
- 1. I am over the age of 18, of sound mind, and if called upon, could testify under oath as to the following.
- 2. I am the Director of Environmental Regulatory Affairs at Space Exploration Technologies Corporation ("SpaceX"). I've been working in this position and other similar positions at SpaceX for over 6 years.
- 3. As the Director of Environmental Regulatory Affairs, I am responsible for overseeing environmental management at SpaceX's launch facility in Boca Chica, Texas, including SpaceX's compliance with applicable environmental laws, such as the Texas MSGP.
- 4. I make this Declaration in support of Plaintiff SpaceX's Opposition to Save RGV's Motion for a Preliminary Injunction. The facts stated herein are based on my personal knowledge.
- 5. Based on my knowledge, training, and experience, and based on my and my staff's interactions with TCEQ, the deluge water system complies with the Texas Pollution Discharge Elimination System Multi Sector General Permit ("Texas MSGP"). Based on my knowledge,

training, and experience, and based on my and my staff's interactions with TCEQ, the deluge water system discharges are permitted non-stormwater discharges under the Texas MSGP, as discussed in more detail below.

- 6. In July 2023, SpaceX hosted TCEQ on site at the Launch Pad for purposes of demonstrating coverage under the Texas MSGP. We explained the system, explained why we believed that the system complied with the Texas MSGP, demonstrated the system, and then walked the site with TCEQ following the launch. Following this walk through, my colleague Carolyn Wood routinely provides to TCEQ sample results from when the system was used with tests and launches. Those sample results show the water complies with all Texas MSGP effluent limits and, more recently, the Agreed Order between TCEQ and SpaceX that is described in more detail in Ms. Wood's declaration.
- 7. The discharges consist of potable water purchased from the Brownsville Public Utilities Board that is the same as the drinking water provided to neighboring residents. The deluge water is regularly monitored and tested and has been found to fall well within safe parameters. The system also reduces fires and prevented dust and debris from dispersing during engine ignitions, along with reducing vibration impacts. If the system cannot be used, then tests and launches cannot occur. This type of non-stormwater discharge is in my view allowed under the Texas MSGP. The system also serves to reduce fires and suppress the dispersal of dust during engine ignitions, along with reducing vibration impacts. If the system cannot be used, then tests and launches cannot occur.
- 8. I have recently read the Save RGV Complaint, which describes deluge water as "industrial wastewater." SpaceX disagrees with that characterization. Moreover, prior to Save RGV filing its Complaint, SpaceX resolved any wastewater issues regarding its deluge water operations with the relevant environmental regulators. These actions included the following:

- a. SpaceX submitted an additional permit application for an additional permit for the deluge water system, called an individual Texas Pollutant Discharge Elimination System ("TPDES") permit. TCEQ has already conducted a technical review of SpaceX's permit application and determined that the use of the deluge water system does <u>not</u> cause adverse risk to the environment. SpaceX expects to receive that permit from TCEQ shortly.
- b. SpaceX also agreed to an Agreed Order with TCEQ in which SpaceX paid a civil penalty, did not admit to violating the Clean Water Act, and denied all allegations.
- c. SpaceX also agreed to a Consent Agreement with EPA in which SpaceX agreed to pay to EPA a civil penalty without any admission of wrongdoing all allegations that SpaceX had been discharging deluge water without a permit.
- d. SpaceX continues to provide to other federal regulators relevant information about each use of the deluge system and SpaceX continues to receive authorizations for use of the system in connection with its flights.
- 9. Additionally, TCEQ has assured SpaceX that it may continue to operate the water deluge system so long as SpaceX complies with the terms of the Agreed Order, which SpaceX is doing.

I. SpaceX's commitment to environmental stewardship and sustainability

10. As relevant background, SpaceX is committed to environmental protection and sustainability, both on Earth and in space. SpaceX was the first space technology company to reuse rocket boosters and is committed to developing additional reusable technology. By

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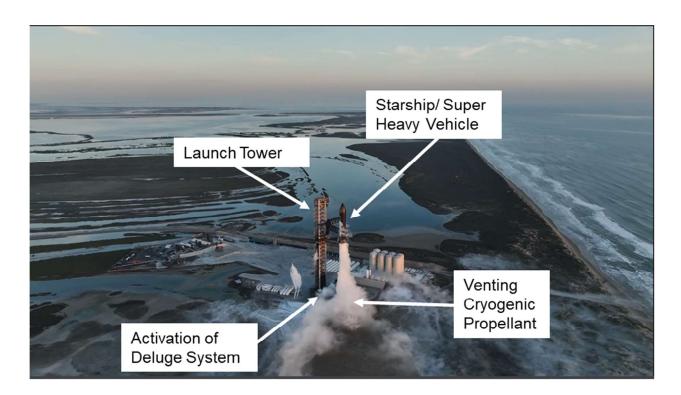
¹ Although not the focus of this case, SpaceX has committed to ensuring a safe and sustainable orbital environment. SpaceX, *SpaceX's Approach to Space Sustainability and Safety*, https://www.spacex.com/updates/ (Feb. 22, 2022) (last visited May 24, 2022).

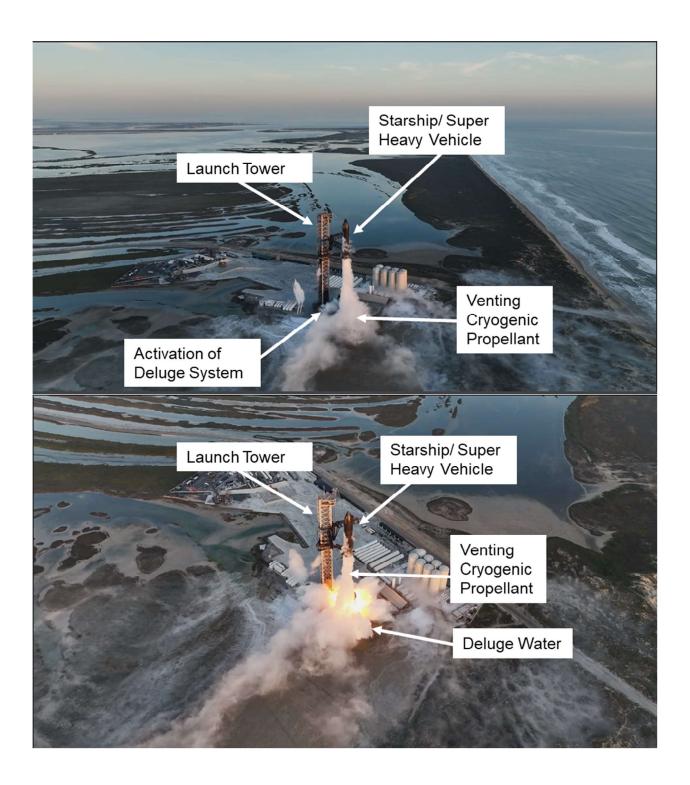
employing reusable technology, SpaceX reduces waste, saves energy, and thereby enables sustainable, cost-effective access to space.

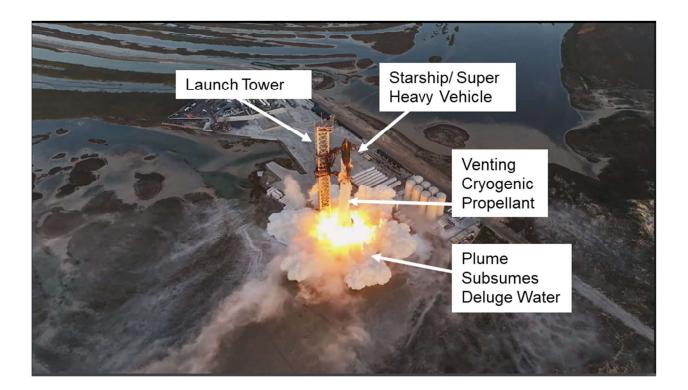
- 11. SpaceX designed the Starship-Super Heavy launch vehicle at issue in this case to be fueled by liquid methane, which is significantly better for the environment when burned than kerosene used to fuel other rockets. Liquid methane fuel can also be produced from water on the moon and Mars while generating oxygen.
- 12. SpaceX undertakes numerous efforts in Boca Chica and the larger community to help preserve and enhance the environment and wildlife. For example, SpaceX performs quarterly beach cleanups, which improve the public's enjoyment of Boca Chica beach and reduce the risk of harm to species such as piping plovers, red knots, and sea turtles. During these events, SpaceX provides opportunities for agencies and organizations to teach the community about the importance of conservation and local wildlife preservation.
- 13. SpaceX also works extensively with Sea Turtle, Inc. to further that organization's efforts to monitor, conserve, and rehabilitate the sea turtle populations on and near Boca Chica beach. SpaceX provides vehicles, equipment, and dedicated space for monitoring activities, collaborates with Sea Turtle, Inc. biologists, and provides access to technology that allows Sea Turtle, Inc. to monitor sea turtle nesting remotely when needed.
- 14. In addition, SpaceX acts to monitor and mitigate the effects of its activities at the Boca Chica launch site. SpaceX trains employees to identify environmental impacts—like spills—in real time, and SpaceX provides annual monitoring reports regarding vegetation and species around the Boca Chica launch site. Consistent with environmental review and licensing actions for the Boca Chica launch site, SpaceX also implements many mitigation measures to mitigate its environmental effects.

II. The deluge system

- 15. Deluge systems are critical to prevent and extinguish fires during rocket testing and launches; to prevent the spread of dust and other debris; and to thereby protect launch systems and surrounding areas. Other launch sites, including Kennedy Space Center and Cape Canaveral Space Force Stations in Florida, and Vandenburg Space Force Base in California, also use deluge systems.
- 16. SpaceX installed a deluge system after its April 20, 2023 test flight of Starship-Super Heavy resulted in fire and other damage to the launch site and the dispersal of dust and debris.
- 17. The deluge system expels a maximum of approximately 180,000 gallons of potable water on the launch pad during an ignition event to control fire and prevent the dispersal of dust and sand, thus protecting launch infrastructure and the surrounding environment. Time-lapse photos that depict what the deluge system looks like when activated are provided below:







- 18. The water used in the deluge system is potable water trucked in from the Brownsville Public Utilities Board. The water is stored in clean, dedicated tanks and pumped to the system via clean, dedicated pipes installed for that purpose. No chemicals or substances are added to the water at any point.
- 19. Most deluge water vaporizes due to the heat when the rocket engines ignite and dissipates as a cloud of steam. Because the rocket engine exhaust contains only water vapor, gaseous carbon dioxide and heat, there is no change to the chemical makeup of the deluge water due to contact with the exhaust.
- 20. The deluge water is activated for a few seconds prior to the engines igniting. When the engines ignite, a small portion of the water can leave the pad as sheet flow or the water is "pushed out" beyond the pad as a result of the rocket's thrust. Deluge water continues to flow after the engines shut down or the vehicle launches. The water flows for approximately 40 seconds in total. Most of the water is contained within the Vertical Launch Area ("VLA") by the water

containment structures. These water containment structures have a total storage capacity of 276,000 gallons and are concrete lined to prevent percolation to groundwater. It is possible that some sheet flow will pass the containment structures and enter into the areas immediately adjacent to the developed area of the VLA. Deluge water that is pushed beyond the VLA extends just off the pad by approximately 20 – 30 feet into an area on SpaceX property through or near the outfalls specified in SpaceX's Texas MSGP and discussed in paragraphs below. The launch pad and containment structures (sometimes called retention basins) are depicted in this photo:



III. Permitting of the deluge water discharges

21. SpaceX's stormwater discharges and certain non-stormwater discharges, including deluge water, at the Boca Chica launch site are covered under Sector AB of the Texas MSGP, which applies to "Guided Missiles and Space Vehicles" and "Guided Missiles and Space Vehicle

Propulsion Units and Unit Parts." See Exhibit A (Texas MSGP TXR050000).²

- 22. SpaceX submitted a Notice of Intent to be covered by the Texas MSGP to the Texas Commission on Environmental Quality ("TCEQ") on July 12, 2023, and amended its authorization to include certain additional discharge points on September 29, 2023.
- 23. SpaceX coordinated closely with TCEQ in ensuring that the deluge system is properly permitted. For example, in July 2023, SpaceX hosted TCEQ at the Launch Pad. We explained the system, explained why we believed that the system complied with the Texas MSGP, demonstrated the system, and then walked the site with TCEQ following the launch. Following this walk through, my colleague Carolyn Wood has routinely provided to TCEQ sample results from when the system was used with tests and launches. Those sample results show the water complies with all Texas MSGP effluent limits and, even more recently, with the TCEQ Agreed Order described above.
- 24. TCEQ assigned the "Starbase Launch Pad Site" Permit Number TXR05GD61. This has been an active permit with TCEQ since July 12, 2023.³ My understanding and belief is that the Texas MSGP remains in full force and effect.
- 25. Section 6.A of the MSGP authorizes, in pertinent part, the following non-stormwater discharges "through outfalls identified in" a facility's Stormwater Pollution Prevention Plan ("SWPPP"):
 - (a) discharges from emergency firefighting activities;
 - (b) uncontaminated fire hydrant flushings (excluding discharges of hyperchlorinated water, unless the water is first dechlorinated and discharges are not expected to adversely affect aquatic life);

² Available at https://www.tceq.texas.gov/downloads/permitting/stormwater/general/multi-sector/txr050000-2021.pdf.

³ See TCEQ Website, Water Quality General Permits Search, Summary of Authorization TXR05GD61, available at https://www2.tceq.texas.gov/wq dpa/index.cfm.

- (c) potable water sources (excluding discharges of hyperchlorinated water, unless the water is first dechlorinated and discharges are not expected to adversely affect aquatic life); . . .
- (i) uncontaminated water used for dust suppression; . . .
- (l) other discharges described in Part V of this permit that are subject to effluent guidelines and effluent limitations.

Exhibit A at 83-84.

- 26. The deluge water is covered by this list of non-stormwater discharges. It uses potable water that is purchased and trucked in from the Brownsville Public Utilities Board. This is the same water that local residents drink. As noted, the deluge system is used to reduce the fires caused by the thrust of the Starship–Super Heavy engine that ignites on the launch pad prior to launching. The deluge system also suppresses dust and debris that would otherwise be dispersed by the thrust of the launch.
 - 27. SpaceX explained all these purposes of the deluge system to TCEQ.
- 28. In accordance with the Texas MSGP, the SpaceX SWPPP (Exhibit B) identifies the outfalls for the non-stormwater discharges associated with the deluge system. Specifically, the SpaceX SWPPP identifies Outfalls 003, 004, 005, 010, and 011 as the pertinent outfalls for "approved non-stormwater discharge (deluge water used for dust and fire suppression) when the deluge system at the Orbital stand is used." Exhibit B at 14.
- 29. The SpaceX SWPPP also states that, during deluge operations, the deluge water could discharge from outfalls 003, 004, and 005 and near outfalls 010 and 011. In pertinent part, the SWPPP states:

Outfall 003: Stormwater from the Central portion of the site (Drainage Area 7), Western portion of the site (Drainage Area 3), and a portion of the Orbital Stand (Drainage Area 8) will flow to Outfall 003 (25.996886, -97.156233). The runoff will flow via sheet flow to connected storm drains which open at Outfall 003 and may ultimately flow to Segment 2501 – Gulf of Mexico. This Outfall may occasionally release approved non-stormwater discharge (deluge water used for dust and fire suppression from) when the deluge system at the Orbital stand is used.

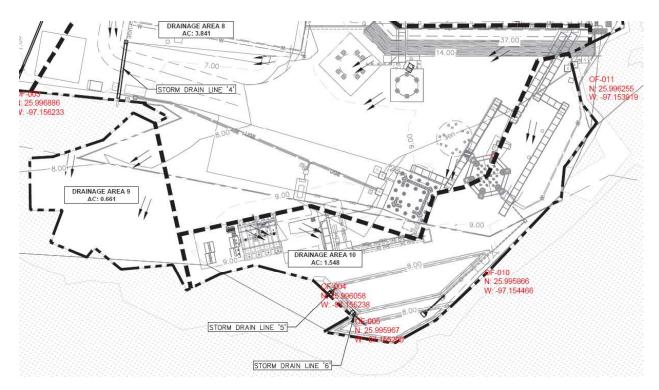
Outfall 004 and Outfall 005: Stormwater from the Southeastern portion of the site, including the Orbital Stand, (Drainage Areas 8, 9, and 10) will flow to Outfall 004 (25.996058, -97.155238) and Outfall 005 (25.995967, -97.155200). The runoff will flow via sheet flow to connected storm drains which open at Outfall 005 and 005 and may ultimately flow to Segment 2501 – Gulf of Mexico. This Outfall may occasionally release approved non-stormwater discharge (deluge water used for dust and fire suppression) when the deluge system at the Orbital stand is used.

Outfall 010 and Outfall 011: Stormwater from the Southeastern portion of the site around the Orbital Stand (Drainage Areas 8 and 10) and the Northeastern portion of the site (Drainage Area 11) will flow to Outfall 010 (25.995866, -97.154466) and Outfall 011 (25.996255, -97.153919). The runoff will flow via sheet flow in times of heavy flow, expected to only be when the deluge system at the Orbital Stand is in use, and discharge as such near Outfalls 010 and 011 and may ultimately flow to Segment 2501 – Gulf of Mexico. The water released will be approved non-stormwater discharge (deluge water used for dust and fire suppression) when the deluge system at the Orbital stand is used.

Exhibit B at 13-14.

- 30. TCEQ's website lists all these outfalls as covered by the Texas MSGP.⁴
- 31. The SWPPP depicts the locations of outfalls 004, 005, 010, and 011, which are all arrayed around the launch pad:

⁴ See https://www2.tceq.texas.gov/wq_dpa/index.cfm?fuseaction=home.permit_list_by_permit&permit_number=TXR05GD61.



- 32. Outfalls 003, 004, 005, 010, and 011 are the outfalls at or near where the deluge water flows beyond the VLA.
- 33. The SWPPP also memorializes that SpaceX and its environmental consultant, in accordance with the Texas MSGP, evaluated the deluge water as a source of non-stormwater discharge that is permitted by Texas MSGP and determined "non-permitted, non-stormwater discharges do not occur at the site." Exhibit B at 51 (emphasis added).
- 34. The SWPPP also memorializes that the "[d]eluge water used for dust suppression and fire suppression at the Orbital stand during both static fires and launches was further evaluated to ensure the water did not contain any contaminants. *The deluge water does not go through any industrial processes prior to its use.*" Exhibit B at 51 (emphasis added).
- 35. The SWPPP also explains that the sampling was analyzed for compliance with "EPA Primary and Secondary Drinking Water," among other analyses. The SWPPP explains that the sampling results "demonstrated the deluge water is not expected to contain any pollutants of

concern in amounts exceeding amounts deemed to be hazardous," and that "[a] slide deck presenting the results to the TCEQ, as well as correspondence confirming their approval will be maintained with this SWPPP." Exhibit B at 51-52.

- 36. As discussed below, the deluge water has been sampled several times and found to be safe and well-within TCEQ Effluent Limitations, and, even more recently, the Agreed Order.
- 37. In accordance with the SWPPP, SpaceX has implemented Best Management Practices to control discharges. These include the lined concrete retention basins discussed above, as well as the installation of curbing to minimize water leaving the pad except to the retention basins. Before each use of the deluge system, SpaceX also inspects and sweeps the pad to remove particulates and cleans up oil or grease left behind by vehicles and other equipment. These measures all ensure that deluge water does not come into contact with pollutants. TCEQ has inspected the facility and has not found any issues with SpaceX's implementation of these measures.
- 38. As stated above, I read the Save RGV Complaint, which describes deluge water as "industrial wastewater." SpaceX disagrees with that characterization. As explained above, the deluge water falls under the Texas MSGP's listed categories of permitted non-stormwater discharges, including potable water discharges and water discharges to suppress fire and dust. The discharges of deluge water that occur at and/or near the outfalls are also directly addressed in the SWPPP, as required by the Texas MSGP. *See* Exhibit B at 51. Also, the deluge water is purchased potable water from the local public utility and is not subject to any industrial processes.
- 39. Moreover, prior to Save RGV filing its Complaint, SpaceX resolved any wastewater issues regarding its deluge water operations with the relevant environmental regulators. These actions included the following:

- a. SpaceX submitted an additional permit application for an additional permit for the deluge water system, called an individual Texas Pollutant Discharge Elimination System ("TPDES") permit. TCEQ has already conducted a technical review of SpaceX's permit application and determined that the use of the deluge water system does <u>not</u> cause adverse risk to the environment. SpaceX expects to receive that permit from TCEQ shortly.
- b. SpaceX also agreed to an Agreed Order with TCEQ in which SpaceX paid a civil penalty, did not admit to violating the Clean Water Act, and denied all allegations.
- c. SpaceX also agreed to a Consent Agreement with EPA in which SpaceX agreed to pay to EPA a civil penalty without any admission of wrongdoing all allegations that SpaceX had been discharging deluge water without a permit.
- 40. TCEQ has assured SpaceX that it may continue to operate the water deluge system so long as SpaceX complies with the terms of the Agreed Order, which SpaceX is doing.
- 41. Additionally, SpaceX has provided, and continues to provide, to multiple federal regulators relevant information about each use of the deluge system.

IV. Environmental review of the deluge system

- 42. In addition to TCEQ's review that found that there was no adverse risk of environmental harm, multiple other agencies thoroughly studied the construction and use of the deluge system and reached the same conclusion.
- 43. The FAA first evaluated the use of a deluge system in its 2022 Programmatic Environmental Assessment ("PEA") for the Starship-Super Heavy Program at Boca Chica.⁵

⁵ Available at https://www.faa.gov/sites/faa.gov/files/2022-06/PEA_for_SpaceX_Starship_Super_Heavy at Boca Chica FINAL.pdf.

Exhibit C. The U.S. Army Corps of Engineers, U.S. Coast Guard, U.S. Fish and Wildlife Service, National Park Service, and NASA served as cooperating agencies on the PEA. The PEA evaluated the impacts of a deluge system with a capacity of up to 350,000 gallons. Exhibit C at 162 (stating that SpaceX would discharge up to 350,000 gallons of deluge water per launch event). The final PEA concluded that a deluge system, if used, would not significantly impact surface water quality, groundwater quality, or floodplain function. The PEA explained that low percolation rates in the vicinity of the VLA and "stormwater treatment and industrial wastewater systems that are properly designed and operated in accordance with permit conditions" would mitigate impacts to groundwater. Exhibit C at 112-13. With respect to floodplain function, the PEA concluded that because most deluge water would vaporize or be collected by retention basins, and only a small amount of deluge water could potentially reach the unvegetated flat next to the VLA, deluge water would not "alter vegetation and the floodplain function." Exhibit C at 115 (emphasis added).

- 44. Furthermore, EPA submitted a comment letter on the draft PEA and did not raise any concerns or note any objections to the proposed deluge system. Exhibit D.
- 45. The FAA again evaluated the environmental impacts of the deluge system SpaceX installed after the April 2023 launch in a Written Re-evaluation issued on November 15, 2023 ("November 2023 WR"). Exhibit E. The FAA again found that operation of the deluge system would not significantly impact water quality because the deluge system would use potable water, and "[i]t is not expected the deluge water would contain any pollutants during future operations." Exhibit E at 11 (emphasis added). The FAA also concluded that deluge water discharges would not significantly impact biological resources. The FAA explained that the amount of water that could leave the VLA as overland sheet flow, "push out," or condensation—"approximately 20% of the total water (approximately 71,000 gallons)"—"is comparable to slightly increased rainfall

runoff." Exhibit E at 22-23, 33. In fact, the FAA noted that "an average summertime thunderstorm at Boca Chica would deposit more water over the landscape than any single or all combined activations of the deluge system." Exhibit E at 35 (emphasis added). Consequently, the FAA concluded that the risk of vegetation creep into nearby mudflat habitat was low. Had the FAA had any concerns about operation of the deluge system, which was scheduled to be used days later for the November 18, 2023 launch, I am confident that the FAA would have stated them.

- 46. The FAA and U.S. Fish and Wildlife Service (the "Service") also reviewed the effects of the deluge system on threatened and endangered species and critical habitat pursuant to the Endangered Species Act. In an addendum to the Biological and Conference Opinion prepared in connection with the Starship-Super Heavy Program in 2022 ("2022 BCO Addendum"), the Service found that operation of the deluge system could cause flushing and avoidance behavior that could decrease the risk of harm to species by leading them to avoid the area. Exhibit F at 18. The Service concluded that the deluge system could also have *beneficial* effects to listed species by dampening noise and vibrations from launch operations and thus reducing levels of stress and disruption that wildlife may experience during launch events. Exhibit F at 18.
- 47. In connection with the November 2023 WR and 2022 BCO Addendum, SpaceX agreed to additional measures to mitigate any potential adverse impacts from the deluge system. These include but are not limited to:
 - a. Using drone imagery to monitor the visible extent of water in overland sheet flow discharges and vapor plumes and reporting the findings to the FAA and Service in each post-launch monitoring report and annual report.
 - b. Testing water generated by the production and manufacturing facilities in Boca Chica to assure it is of comparable quality to potable water trucked in from

Brownsville before adding it to the water tanks at the VLA and reporting the findings to the FAA and Service in each post-launch monitoring report and annual report.

c. Sampling soil, water, and air adjacent to the launch pad for components of stainless steel including but not limited to total chromium, hexavalent chromium, iron, and nickel according to the contaminants plan *and reporting the findings to the FAA* and Service in each post-launch monitoring report and annual report.

V. Monitoring has shown no significant environmental impacts from the deluge system.

- 48. SpaceX has used the deluge system multiple times for testing and launches between November 2023 and October 2024. Monitoring has not shown any significant environmental impacts. SpaceX has been reporting this information to the FAA and the Service with every post-launch monitoring report and annual report.
- 49. Data collected after these launches have shown that the deluge system is operating as expected. Exhibit G.
- 50. Any water that was pushed off the launch pad was dispersed approximately 20' to 30' away from the launch pad, on SpaceX property, in an area near the approved outfalls, per the SWPPP and the Texas MSGP.
- 51. Sampling has demonstrated that the deluge water is well-within effluent limitations in Section C of the Texas MSGP and, more recently, the TCEQ Agreed Order.
- 52. Monitoring of other ecological indicators that could be impacted by deluge water also show no significant impacts. Vegetation monitoring, for example, has shown an overall decrease in plant cover of adjacent mudflats over the past few years, within the natural range of

variability. This indicates that operation of the deluge system to date has not adversely impacted adjacent mudflats by causing vegetation creep. Exhibit H.

VI. Save RGV's lawsuit related to use of the deluge system

- 53. On October 9, 2024, Save RGV filed a lawsuit against SpaceX for SpaceX's use of the deluge water system constitutes an unpermitted discharge of industrial wastewater into waterways near the SpaceX facility, including the South Bay of the Lower Laguna Madre. The lawsuit also alleges that the wastewater degrades water quality and harms aquatic life.
- 54. Based on my knowledge of SpaceX's operations, the information provided to SpaceX's regulators, and the review of that information by our regulators, I disagree. The water from the deluge water system is discharged onto the ground, on SpaceX property, approximately 20-30 feet off of the launchpad. TCEQ did not find any adverse risk of environmental harm based on its review of the deluge system. SpaceX's other regulators have not identified any environmental harm has occurred from use of the system. Nor has SpaceX's monitoring of the use of the system, which includes sampling the water after each use. Those samples show that the deluge water complies with the Texas MSGP effluent limits and the TCEQ Agreed Order.
- RGV has requested an injunction to stop SpaceX's use of the system until SpaceX receives its individual permit. SpaceX expects to receive that permit in January/February 2025, though it could take longer if any opponent of the permit filed a contested case, which may require a hearing. If the Court grants Save RGV's injunction, SpaceX will be unable to conduct Flight #5, tentatively scheduled for October 13, 2024, and any other static fire tests and launches that would be scheduled to take place with FAA's authorization through the rest of 2024 into early 2025.
 - 56. True and correct copies of the referenced documents are attached as exhibits.

57.	Pursuant to 28 U.S.C.	§ 1746, I declare under penalty of perjury that the fo	regoing
is true and correct.		Cocoa, Florida	
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		katy Groom	
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Browsers (for SENDERS):	Internet Explorer 6.0? or above			
Browsers (for SIGNERS):	Internet Explorer 6.0?, Mozilla FireFox 1.0,			
	NetScape 7.2 (or above)			
Email:	Access to a valid email account			
Screen Resolution:	800 x 600 minimum			
Enabled Security Settings:				
	•Allow per session cookies			
	•Users accessing the internet behind a Proxy			
	,			
	Server must enable HTTP 1.1 settings via			
	proxy connection			

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